

## Claims

1. An electric device (20<sup>1</sup>, 301) for connecting an analogue data transfer device (202) by means of a control unit (203) to a digital transfer system, comprising means for connecting to a data transfer device with a twin cable (204),  
5 characterized in that it comprises
- a current amplifier arrangement (214, 314, 340) for feeding a certain current to a twin cable,
  - a first current switching device (219) for switching a first control current to the current amplifier arrangement, and
  - 10 - a second current switching device (220) for switching a second control current to the current amplifier arrangement.
2. A device according to Claim 1, characterized in that it comprises a first supply voltage connection (226) for providing a voltage level which is higher than any voltage level occurring in the twin cable (204), and a second supply voltage  
15 connection (227) for providing a voltage level which is lower than any voltage level occurring in the twin cable (204), whereby said first current switching device (219) is coupled to the first supply voltage connection and said second current switching device (220) is coupled to the second supply voltage connection.
3. A device according to Claim 2, characterized in that said first current  
20 switching device is a double current mirror (219) with a first output (222) and a second output (223), and said second current switching device is a second current mirror (220) with a control input (225) and an input for the controlled current (224), whereby
- the first output (222) of the double current mirror is coupled to the current  
25 amplifier arrangement, and the second output (223) is coupled to the control input (225) of the second current mirror, and
  - the input for the controlled current (224) of the second current mirror is coupled to the current amplifier arrangement.
4. A device according to Claim 3, characterized in that said double current  
30 mirror (219) comprises a control input (221), whereby said device comprises means (206, 210, 211, 231, 351) for forming the signal to be led to the control input of the double current mirror as a sum of the signal corresponding to the measured voltage of the twin cable and the alternating voltage signal given by the control unit.

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5. A device according to Claim 4, characterized in that said means for forming the signal to be led to the control input of the double current mirror comprise an isolation amplifier (210, 351) coupled to the twin cable and a current generator (231) coupled to the output of said isolation amplifier via a low pass filter (211),  
5 and means for summing the alternating current signal (206) given by the control unit to the signal received from the output of said low pass filter.

6. A device according to Claim 4, characterized in that said double current mirror also comprises an input of the enable/disable type for controlling the double current mirror by means of selection pulses (207) given by the control unit.

10 7. A device according to Claim 1, characterized in that said current amplifier arrangement comprises a first current amplifier (314) and a second current amplifier (340) connected in parallel to the twin cable, which constitute a complementary pair.

15 8. A device according to Claim 7, characterized in that  
- it comprises a first supply voltage connection (226) for providing a voltage level which is higher than any voltage level occurring in the twin cable, and a second supply voltage connection (227) for providing a voltage level which is lower than any voltage level occurring in the twin cable, whereby said first current switching device (219) is coupled to the first supply voltage connection and said second current switching device (220) is coupled to the second supply voltage connection,  
20 and

- said first current switching device is a double current mirror (219) with a first output (222) and a second output (223), and said second current switching device is a second current mirror (220) with a control input (225) and an input for the controlled current (224),  
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whereby the first output (222) of the double current mirror (222) is coupled to the first current amplifier (314), and the second output (223) is coupled to the control input (225) of the second current mirror, and the input for the controlled current (224) of the second current mirror is coupled to the second current amplifier (340).

30 9. A method for simulating an analogue telephone apparatus in a twin cable connected to a data transfer device, characterized in that

- the loop current running in the twin cable is amplified by means of a current amplifier arrangement, and

- said current amplifier arrangement is controlled by means of a first current switching device and a second current switching device.  
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10. A method according to Claim 9, characterized in that the control of a current amplifier arrangement by the first current switching device and the second current switching device is used

- 5 - for transmitting audio frequency signals between a telephone exchange and a digital transfer system,
- for switching a loop current in a twin cable,
- for transmitting selection pulses from a digital transfer system to a telephone exchange and
- 10 - for electrical isolation between components connected to the twin cable and components connected to the digital transfer system.

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